

Pak. Math. Soc. Newsl., 8(2), 2024
ISSN 1816 – 2215

Pakistan Mathematical Society Newsletter



Pak. Math. Soc. Newsl.
ISSN 1816 – 2215
Issue No. 2, Vol No. 8, 2024

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Editorial

From ancient civilizations to the modern era, mathematical societies have been instrumental in fostering collaboration, dissemination of knowledge, and the establishment of standards in mathematical practice. The mathematical societies of antiquity, such as the Pythagorean Brotherhood and the House of Wisdom in Baghdad, laid the groundwork for the development of mathematical principles and techniques.

During the Enlightenment era, mathematical societies emerged as hubs of intellectual exchange, propelling the rapid advancement of mathematics. The Royal Society in England and the French Academy of Sciences served as breeding grounds for groundbreaking discoveries, providing platforms for luminaries like Newton, Euler, and Gauss to share their insights and innovations.

In the contemporary landscape, mathematical societies continue to play a pivotal role in nurturing mathematical talent, facilitating interdisciplinary collaboration, and promoting mathematical literacy. These societies serve as nexus points where mathematicians from diverse backgrounds converge to exchange ideas, present research findings, and address pressing challenges facing the field.

One of the primary functions of mathematical societies is to promote and support mathematical research. Through conferences, workshops, and publications, these societies

provide avenues for researchers to disseminate their findings, receive feedback, and forge collaborations. Moreover, they offer grants, awards, and fellowships to incentivize and recognize excellence in mathematical inquiry.

Another crucial function of mathematical societies is the establishment of standards and ethical guidelines in mathematical practice. Through the formulation of codes of conduct and best practices, these societies ensure the integrity and credibility of mathematical research and teaching. By upholding rigorous standards of scholarship and professionalism, they safeguard the reputation and trustworthiness of the mathematical community.

In recent years, mathematical societies have increasingly recognized the importance of promoting diversity and inclusion within the mathematical community. By advocating for equitable representation and fostering inclusive environments, these societies strive to harness the full potential of all mathematicians, regardless of their background or identity. By embracing diversity, they enrich the mathematical landscape and foster innovation through diverse perspectives and experiences.

The Editor

Seminar Series: From Global to Thesis-Centric

Qaiser Mushtaq

Emeritus Professor, Mathematics Department

Quaid-i-Azam University, Islamabad

The importance of seminars in academic institutions cannot be overstated. These forums serve as a platform for the exchange of knowledge, ideas, and research findings among scholars and students alike. At Quaid-i-Azam University in Islamabad, the initiation of seminars in the Mathematics Department marked a pivotal moment in fostering academic discourse and intellectual growth within the institution.

In September 1994, following my return from Oxford University in December 1983, where I had completed my doctorate, the then Chairman of the Mathematics Department, Professor Asghar Qadir, entrusted me with the task of spearheading a seminar series. This marked the beginning of a significant chapter in the academic journey of the department.

The need for such seminars in the Mathematics Department was palpable. Mathematics, being a field at the forefront of scientific advancement, thrives on continuous exploration and discussion. The introduction of seminars was poised to serve multiple purposes, namely knowledge dissemination, academic exchange, and professional development.

I established a weekly seminar series, conducted every Monday at 1:15 pm in Room Number 18, which persisted throughout my tenure as its custodian. This consistent schedule provided a structured platform for scholars, researchers, and students to engage in diverse mathematical topics, fostering a culture of intellectual curiosity and exchange within the department.

The spectrum of subjects covered in these seminars was vast, encompassing both specialized and general interest areas in mathematics. To promote these discussions, titles and abstracts of talks were meticulously obtained, ensuring widespread publicity and anticipation for each session.

Recognizing the importance of global collaboration and inviting perspectives from diverse backgrounds, extensive national and international publicity campaigns were undertaken. A proactive approach was adopted to invite distinguished mathematicians passing through Pakistan to participate as potential seminar speakers. An announcement inviting potential speakers was disseminated widely, showcasing the department's commitment to fostering a global mathematical dialogue.

To further extend the reach of these seminars, a poster detailing 15 upcoming sessions with dates, speakers' names, and talk titles was circulated among various international mathematical societies, national

universities, scientific organizations, and the University Grants Commission. This outreach aimed to attract a broad audience and promote a culture of academic exchange beyond the university's borders.

The impact of these seminars was profound. They facilitated the exchange of ideas, encouraged interdisciplinary collaboration, and nurtured an environment conducive to scholarly discourse. They became a cornerstone in the department's academic calendar, fostering a community passionate about the pursuit of mathematical knowledge.

As the seminars continued, they not only enhanced the academic prowess of the Department of Mathematics at Quaid-i-Azam University but also contributed significantly to the broader mathematical landscape of Pakistan.

Seminars are an effective means to disseminate the latest advancements and research in mathematics. They provide a platform for faculty members, researchers, and students to present their work, share insights, and receive constructive feedback from peers.

Facilitating seminars encourages an exchange of ideas, perspectives, and methodologies among scholars. It fosters a culture of collaboration and interdisciplinary learning, contributing to a more vibrant academic environment.

For students, seminars serve as invaluable learning experiences. They expose them to diverse topics, innovative approaches, and the rigors of academic discourse, nurturing critical thinking and analytical skills essential for their future careers.

The inception of the seminar series brought together faculty members, researchers, and students, creating a platform that transcended hierarchical boundaries. It provided an equal opportunity for all participants to engage in intellectual discussions, regardless of their academic standing.

The seminars covered a wide spectrum of mathematical disciplines, ranging from pure mathematics to applied areas like statistics, computational mathematics, and mathematical modeling. Mathematicians from both national and international arenas were invited as guest speakers, enriching the seminars with their expertise and insights.

Over time, the seminar series evolved into a cornerstone of the department's academic calendar and culture. Its success was evident in the increased participation, the quality of presentations, and the enthusiasm among attendees. It became a catalyst for fostering a vibrant mathematical community in Pakistan.

During the peak of the seminar series, my commitments shifted. I had to pass the torch to the incumbent Chairman

before embarking on an illustrious journey to the Massachusetts Institute of Technology (MIT). This significant move was prompted by an incredible opportunity to collaborate as a Senior Fulbright Scholar alongside Professor Gian Carlo Rota. Despite the bittersweet nature of leaving his ongoing work, the prospect of engaging in groundbreaking research and academic exchange at a renowned institution like MIT filled me with anticipation and eagerness for the journey ahead. My departure marked a new chapter in my academic career, brimming with the promise of innovation and collaboration at the forefront of scholarly endeavours.

Unfortunately, the original intent of these seminars, designed to inspire upcoming mathematicians by fostering dialogue, exchange of ideas, and continuous learning in the pursuit of mathematical innovation, did not persist over time. Instead, the seminars veered off course from their initial purpose. They became primarily a means for the department to meet its obligation of providing a platform for PhD students to present two seminars based on their theses during their tenure.

As a result of this shift, the seminar series became confined to technical presentations by each PhD student, losing its essence of facilitating international and national interactions among mathematicians. Furthermore, the department's composition, with only one - third of its

students specializing in pure mathematics compared to two-thirds in applied mathematics-specifically, fluid mathematics - exacerbated the issue. This narrowed the seminars' original purpose, adversely affecting other branches of both pure and applied mathematics.

The 23rd Annual General Meeting of PakMS

Dr Sarwar Saeed

General Secretary, PakMS

The 23rd Annual General Meeting (AGM) of the Pakistan Mathematical Society (PakMS) was held according to Clause VIII(1) of the Constitution of the PakMS, on 19th January 2023 in the Banquet Hall, Islamabad Club.

The event was divided into two parts. The first part was exclusively the investiture ceremony of the 8th PakMS Medal to honour posthumously the recipient Late Professor Khwaja Masud. His sons, Dr. Khwaja Yaldram (an eminent Physicist) and Dr. Khwaja Sarmad (an eminent Economist), were present at the ceremony. The President read citation of the medal. On behalf of Late Professor Khwaja Masud, his sons received the medal from the President of the Society. Dr. Khwaja Yaldram shared memories and insights into his father's life. The investiture ceremony concluded after the guests were entertained with Hi tea.

After a brief interlude, the 23rd AGM started. The General Secretary, Dr Sarwar Saeed, counted the members of the Society and declared completion of the quorum as per requirement of the Constitution of the Society. He then announced the agenda as per tradition and clauses of the Constitution. Thereafter, the annual reports by the President, General Secretary and the Treasurer of the Society were presented to the members of the Society.

The General Secretary, Dr Sarwar Saeed, then presented his report for the year 2023 and informed the members about Society's regular activities in the year 2023.

The President of PakMS, Emeritus Professor Qaiser Mushtaq, highlighted the importance of PakMS, its functions, and its role as a learned society.

Interview with Dr. Suraiya J. Mahmood

Dr Saadia Mehwish

London, UK

Interviewer: Thank you for joining us, Dr. Suraiya J. Mahmood. Let's start by delving into your remarkable journey. Could you tell us about your early years and how your passion for mathematics developed?

Dr. Suraiya J. Mahmood: Certainly. I was born in Lahore in 1944 but spent my formative years in Karachi. My mother, Anwer Sultana, was a significant influence on my education. Despite facing societal pressures that halted



her education after ninth grade, she instilled a love for learning in me and my siblings, particularly in mathematics. My father, Mohammad Bashir Qureshi, equally prioritized education for his children. This nurturing environment laid the foundation for my academic pursuits.

Interviewer: Your academic journey is quite inspiring. Could you walk us through your educational milestones and the challenges you faced?

Dr. Suraiya J. Mahmood: Certainly. I began my schooling at St. Joseph's Convent school before moving to a Government School and eventually completing my Metric from Govt. Girls' Secondary School in Karachi. During my B.Sc., I encountered severe migraines that persisted for three years. However, with determination and a regulated sleep pattern, I overcame this obstacle. My academic journey took a significant turn when I pursued M.Phil. leading to a Ph.D. at Islamabad University. Despite facing setbacks, including the departure of my initial supervisor, I remained steadfast in my pursuit of algebraic research.

Interviewer: Your perseverance is truly commendable. Could you share with us your experiences during your Ph.D. studies, particularly as a mother of three?



Dr. Suraiya J. Mahmood: Balancing academia with motherhood was indeed challenging. With the unwavering support of my husband and family, I

embarked on my Ph.D. journey at the University of Edinburgh. Despite initial skepticism from some quarters, including doubts about my ability to complete my studies, I remained focused. My supervisor, Dr. John David Philip Meldrum, played a pivotal role in facilitating my studies while accommodating my familial responsibilities. Flexibility in my schedule and unwavering determination propelled me towards completing my Ph.D. within three years.



Interviewer: Your resilience is truly inspiring. After completing your Ph.D., you embarked on an illustrious career in academia. Could you tell us about your experiences as a professor and your contributions to the field of mathematics?

Dr. Suraiya J. Mahmood: Certainly. Following my return to Pakistan, I joined Quaid-e-Azam University and later King Saud University in Riyadh, where I served for 22 years. During this time, I not only taught mathematics but also played a pivotal role in academic management and governance. Additionally, my tenure at Fatima Jinnah Women's University allowed me to establish the Mathematics department, providing quality education to female students. My research contributions, particularly

in areas like Inverse Semigroups and d.g. near-rings, have been recognized internationally.

Interviewer: Your dedication to both teaching and research is truly remarkable. Looking back at your journey, what would you consider your most significant achievements?

Dr. Suraiya J. Mahmood: Establishing the Mathematics department at Fatima Jinnah Women's University stands out as a defining moment in my career. Providing opportunities for female students to pursue mathematics and witnessing their academic achievements has been immensely fulfilling. Additionally, being the first female Ph.D. and Assistant Professor in the Mathematics department at Quaid-e-Azam University and contributing to the inception of the female Mathematics Department at King Saud University are accomplishments I hold dear.

Interviewer: Your contributions have undoubtedly left a lasting impact on the field of mathematics. Before we conclude, is there any message you would like to share with aspiring mathematicians, particularly women?

Dr. Suraiya J. Mahmood: To aspiring mathematicians, especially women, I would say: Believe in yourself and your capabilities. Pursue your passion relentlessly, but also remember the importance of a support system. Surround yourself with individuals who uplift and encourage you, and never underestimate the power of

perseverance. With dedication and determination, you can overcome any obstacle and make meaningful contributions to the field of mathematics.

Interviewer: Thank you, Dr. Suraiya J. Mahmood, for sharing your inspiring journey and invaluable insights with us.

Dr. Suraiya J. Mahmood: It was my pleasure. Thank you for having me.

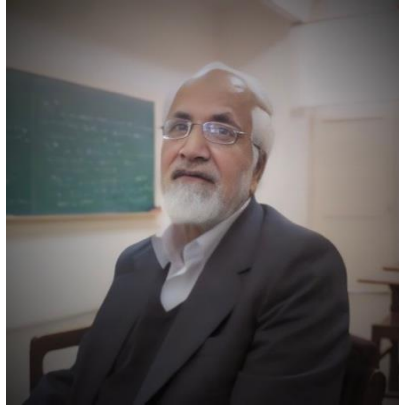
In Memory of Professor S. M. Yusuf

Hafiza Tayyaba Malik
PAF Colony, Mianwali

Sumaira Habib
Principal GGHSS, Malhowali
Pindigheb, Attock

Professor Dr. Sheikh Muhammad Yusuf, born on October 5, 1927, achieved academic milestones with distinction. His educational journey included matriculation, Inter, Degree with B. A. (Hons), and M. A. Mathematics in 1944, 1946, 1948, and 1950, respectively, all from Punjab University, Lahore, where he consistently secured first divisions. Throughout his college years, he earned the College Roll of Honors in 1946, 1948, and 1950. Furthering his academic pursuits, he completed the Mathematical Tripos at Cambridge University in 1955

and later received a Fulbright Scholarship in 1959 for research in the US. His Ph.D. from the University of Tennessee, USA, in 1962, focused on Semigroups with Operators under the guidance of Don Dalzell Miller. Notably, his research papers are cited in Mario Petrich's renowned book on Inverse Semigroups, published in 1982. In 1968, he became the first Pakistani mathematician to receive the Tamgha-i-Imtiaz.



Embarking on his professional journey, he commenced his career as a mathematics lecturer at Islamia College Lahore in October 1950. Subsequently, he served at Peshawar University Peshawar, initially as a senior lecturer in October 1955 and later as an Associate Professor in July 1963. He achieved the position of Professor in Mathematics in August 1969. Following the establishment of the University of Islamabad (now Quaid-i-Azam University) in 1967, he joined as a Professor and remained there for approximately fourteen years from October 1973 to December 1987. Notably, he served as an MPhil supervisor for Professor Dr. Qaiser Mushtaq in 1978, who became the first Pakistani student to produce

two research papers out of his MPhil dissertation. Additionally, Dr. S. M. Yusuf held the position of Dean, Faculty of Natural Science at QAU from July 1981 to December 1987. Post-retirement from QAU, he joined AJK University Muzaffarabad as a Professor of Mathematics in 1988 for about a year. He also served as a Consultant at the Ministry of Education Islamabad from June 1987 to January 1998 for the Mathematics Curriculum for middle schools project. His academic journey continued with roles as a visiting faculty at Alta Vista College Islamabad (from February 1998 to January 1999) and a Professor at Riphah International University Islamabad, followed by joining IIT COMSATS Islamabad as a Professor.

Throughout his career, Prof Dr. S. M. Yusuf remained actively engaged in research, contributing to areas such as semigroups, semi-rings, and hemi-rings. His influence on semigroup theory is evident in his textbooks, where he employs specific notations commonly used by semigroup theorists. In 1985, his research work received extensive citation in "A short guide through the literature of semirings" by Kazimierz Glazek. His contributions were also acknowledged in the Near-ring Newsletter published by the Institute of Mathematik and Johannes Kepler Universitat Linz. Moreover, his papers found mention in the research paper "To the radical theory of hemi-ring" by C. Roos and R. Wiegandt. Prof Dr. S. M. Yusuf is

recognized as a distinguished Pakistani author of mathematics textbooks at various levels, with sixteen textbooks to his credit. His work continues to be cited in publications such as Mario Petrich's book on Semigroups, published by Springer-Verlag, Berlin, Germany in 1973 and Mordeson JN, D.S.Malik, and N. Kuroki's book on Fuzzy semigroups, published by Springer-Verlag, Berlin, Germany in 2003.

Brigadier Professor Dr. Muhammad Ashiq

Dr. Muhammad Ashiq was born in 1966 at a village Easer Tehsil Malakwal District Mandi Bahauddin. Did Matric from the village school named Govt. High School Mumdana. Did his F.Sc and B.Sc. from Govt. Zamindar Degree College Gujrat and then M.Sc. in 1988, M.Phil. in 1991 and Ph.D in 2005 from Quaid-i-Azam University, Islamabad. He was commissioned in Pakistan Army as a Captain in November 1992 and retired as Brigadier on 5th November 2023.



He has served on different instructional and staff appointments. He has also remained on the faculties of Federal College of Education H-9, Islamabad, Military College Jhelum, Fatima Jinnah Women University Rawalpindi, Allama Iqbal Open University Islamabad, Army Public College of Management & Sciences (APCOMS), Rawalpindi, College of EME, Rawalpindi, Military College of Engineering, Risalpur, Military College of Signals, Rawalpindi and National University of Technology (NUTECH), Islamabad He has done most of his professional courses with distinction.

His research is primarily in the field of Group Theory. Specifically, he used coset diagrams introduced by Graham Higman to study actions of a certain group on a space of real quadratic irrational numbers and on finite projective lines over Galois fields. He parameterized the later group actions using Qaiser Mushtaq's theorems.

His research papers are published in Communications in Algebra, Algebra Colloquium, European Journal of Combinatorics, Algebra, Group and Geometry, Advances in Algebra, Southeast Asian Bulletin of Mathematics, Quasigroups and Related Systems and Acta Mathematica Scientia.

He has the honour and privilege of representing Pakistan on international forum. He is one of the two mathematicians ever who represented Pakistan in

International Congress of Mathematicians in 2002 in China and then in 2006 in Spain.

23rd IPMC 2023

Picture with worthy Vice Chancellor of Quaid-i-Azam University, Prof Dr Niaz Ahmad Akhter, of the Organizing Committee for the 23rd IPMC 2023.



24th IPMC 2024

As we celebrate the rich legacy of the International Pure Mathematics Conference, we reflect on its evolution into a premier forum for intellectual exchange and scholarly discourse. Since its inception, this conference has remained steadfast in its commitment to advancing the frontiers of mathematical knowledge, and the 24th edition

promises to uphold this tradition with unparalleled vigour and enthusiasm.

Under the overarching theme of Algebra, Analysis, and Geometry, participants will delve into the intricate interplay between these foundational pillars of pure mathematics, unravelling the mysteries of abstract structures, uncovering the beauty of analytical techniques, and exploring the elegant geometrical patterns that permeate the mathematical landscape.

From groundbreaking research presentations, the programme is designed to inspire, challenge, and stimulate intellectual curiosity. Esteemed keynote speakers, distinguished scholars, and emerging researchers alike will converge to share their insights, discoveries, and innovations, fostering a vibrant ecosystem of collaboration and learning.

As we embark on this intellectual journey, we invite you to join us in celebrating the transformative power of mathematics and the enduring legacy of the IPMC.

For details visit the conference website: www.pmc.org.pk
